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# Evaluating the use of Audio-Visual Aids in Knowledge Gained by Patients Visiting a Dental College in Greater Noida

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**INTRODUCTION:** It is an important part of dentistry to inform and educate the patient about the dental procedure he/she is about to undergo and there are three main methods viz. audio, visual and audio-visual.

**AIM:** To assess the knowledge gained through dental health education in a randomly assigned group before and after undergoing a Dental Procedure.

**METHODOLOGY:** A total of 100 patients were enrolled in the study and were given a 12 item standardised questionnaire (pre-validated, pre-tested, responses based on likert scale) to assess their knowledge prior to the provision of oral health related knowledge. After this, they received an audio-visual based explanation (laptop presentation, model based and verbal explanation of the undergoing procedure and were again given a 21 item questionnaire to assess the changes in knowledge gained by the patients. Data was tabulated and the Chi Square test and Spearman's Correlation were applied to find out significant associations, if any. Data was analysed using SPSS version 21.0.

**RESULTS:** Post-explanation, significant differences were seen in knowledge gained ( $p=.024$ ,  $r=.70$ ) by the patients.

**CONCLUSION:** Dentists are advised to use audio-visual aids for imparting knowledge regarding the dental procedure as it makes the patient more comfortable while undergoing the procedure.

**KEYWORDS:** Audio-Visual Aids, Knowledge, Treatment

## INTRODUCTION

An important aspect of dentistry is to motivate individuals for undergoing routine dental check-ups and treatment, if deemed necessary. It is the patients' right to receive full, clear and accurate information in simple language which they understand, before, during and after treatment, so that they can make informed decisions in partnership with the dental practitioner providing oral care.<sup>1</sup> If the dental professionals aim to provide quality dental care through the means of dental health education, it is important to change the individual's preconceived ideas of dental care and specific treatment procedures.<sup>2</sup>

When it comes to providing health education, there are different media available, but the most common form of delivering dental knowledge is by verbal provision of information and the use of non-verbal adjuncts could aid in enhancing the information gained.<sup>3</sup> Various media such as demonstration models, leaflets, video-films, computers, and books can be useful in imparting oral health-related knowledge to out-patient department patients.<sup>4</sup> An Audio-Visual aid plays a vital role in providing education in a stress-free environment by targeting the direct care of

patients and ensures that the delivery of the relevant information reaches the patients, as they are the ones who would benefit from and be interested in this specific information.<sup>5</sup>

It has been documented in the literature that patients who have a good knowledge of their disease or the treatment procedure have better outcomes than those who lack such knowledge and providing patients with greater information generally causes increased compliance in patients.<sup>6-7</sup> Moreover, patients who belong to rural areas in developing countries, have little or no knowledge regarding the dental procedure and hence it is advisable that they be provided an audio-visual based explanation of the dental procedure for their better understanding.

Keeping the above statement in mind, the present study aimed to assess the knowledge gained through dental health education in a randomly assigned groups before and after undergoing a Dental Procedure.

## MATERIALS AND METHOD (Figure 1.)

The study subjects comprised of patients visiting

the Out Patient Department (OPD) of a Dental College situated in Greater Noida from 1<sup>st</sup> March 2014 to 31<sup>st</sup> August 2014. Following an informed and a written consent, a total of 100 patients were enrolled in the study and their demographic details were recorded (age, sex, and if they had undertaken any dental procedure before and any past traumatic/ painful experience). After recording of demographic details, the patients were given a 12 item pre-validated and pre-tested standardised questionnaire which had responses based on likert scale to assess their knowledge regarding oral health. Following this, patients received an audio-visual based explanation (laptop presentation, model based and verbal explanation of the undergoing procedure). Of a total of 100 patients who participated in the study, 50 underwent root canal procedure and 50 underwent extraction.

Post treatment, the patients were again given a 21 item questionnaire to assess the changes in knowledge gained by the patients on the basis of the explanation provided. Both pre-treatment and post treatment questionnaires were translated in the native language, Hindi, for most of the patients belonged to rural areas. Data was tabulated and the Chi Square test and Spearman's Correlation were applied to find out significant associations, if any. Data was analysed using SPSS version 21.0.<sup>8</sup>

## RESULTS

Table 1. displays the demographic details of the patients who enrolled in the present study. There were a total of 51 males and 49 females who were a part of the study, of whom 60% belonged to rural areas and 40% belonged to urban areas. The total mean age for the study population was 33.7±9.04 years.

Knowledge gained (Figure 2) showed significant differences ( $p=.024$ ) in pre explanation and post explanation of procedure. The "completely understood" response also revealed a significant response ( $p=.024$ ,  $r=.70$ ) favouring the use of audio-visual aids as compared to verbal explanation.

We also asked if the explanation was helpful to the patients and 84% agreed to the explanations being

helpful as compared to 16% who did not find the explanation of any help (Figure 3).

Chi square test and Spearman's correlation revealed significant associations in prior to explanation and after explanation ( $r$  values stated above) which favour the use of audio-visual aids in patient education prior to the procedure undertaken (Table 2).

## DISCUSSION

The present study, aimed to assess the knowledge gained through dental health education in a randomly assigned group before and after undergoing a Dental Procedure and found out that providing audio-visual health information leads to better results as compared to verbal explanation alone ( $p=.024$ ). This is in agreement to Berghoff J who in a study found out that after three hours of hearing a presentation, only 70% of the people remembered the content presented verbally in contrast to 85% of the population that retained information that was reinforced with visual content.<sup>9</sup> Similarly, Lewis D who conducted a systematic review and Morley L et al. acknowledged computer-based education as an effective strategy for transfer of knowledge and skill development for patients and this hypothesis was acknowledged by various authors across the globe indicating the global reach of such an aid for imparting health related knowledge.<sup>10-15</sup> Frere CL et al. also report that the audio-visual system is beneficial in the reduction of fear, pain and procedure time for most dental patients undergoing oral prophylaxis.<sup>16</sup> Similarly, Prabhakar AR have also demonstrated that audio-visual distraction was the most effective means of managing the anxiety in children.<sup>17</sup>

In this present study, post treatment values reported a significant difference in knowledge gained ( $p=.024$ ,  $r=.70$ ) which favours use of audio-visual aids. This is in agreement to various authors, who agree that the use of computer technology is an effective teaching strategy, which positively affects patient knowledge, anxiety and satisfaction by imparting valuable information.<sup>18-21</sup>

Both verbal teaching,<sup>22</sup> discussions<sup>22,23</sup> and written instructions<sup>24</sup> were found to be the least effective teaching strategies which support the studies'

hypothesis claiming the superiority of the use of audio-visual aids. A few credits of audio-visual presentation have been described as convenience and clarity of demonstration of relevant material and providing the opportunity for self-learning in privacy and comfort by the patients by Lees A et al.<sup>25</sup>

Since a low literacy rate is observed in rural areas, the audio-visual aids can help eliminate any language barrier and facilitate easier understanding of the procedure. Our results, which include both rural and urban populations, indicate homogeneity of the study population. It is proposed that the use of audio-visual aids be used in clinical settings, dental outreach camps and satellite clinics. In dental outreach camps, mass education through such aids can help imbibe the knowledge faster by patients and facilitate easy treatment in the dental van/portable chair.

## LIMITATIONS

Our study is prone to a few limitations, namely:

1. Social desirability bias by respondents while filling up the questionnaire.
2. Convenience sampling, which is followed by our study does not entirely represent the population. However, such studies help formulate theories and further research on the topic in question.

## CONCLUSION

Based upon the results of our study, we advise further studies being taken up, especially in the rural population targeting “mass education” of the patients (especially children) using audio-visual aids to facilitate a better knowledge and increased patient compliance. It could also motivate patients to start caring for their oral health, ensuring a better, cavity free future.

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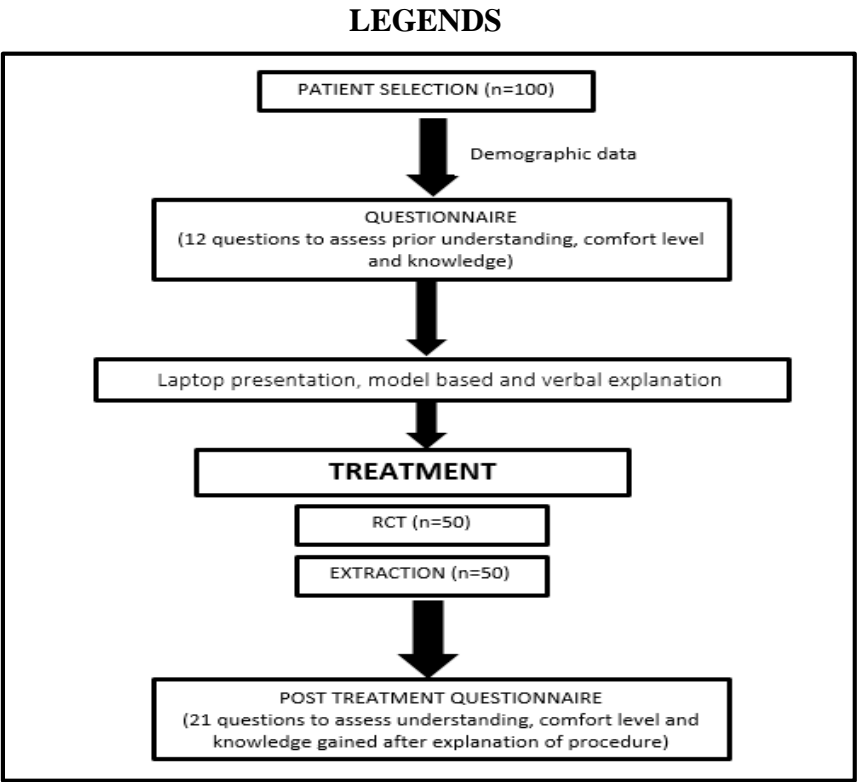


Figure 1. Methodology of the study

CHARACTERISTIC	
Sex	
• Males	59
• Females	41
Mean age	33.7±9.04 years
Geographic location	
• Rural	60
• Urban	40

Table 1. Demographic details of the population

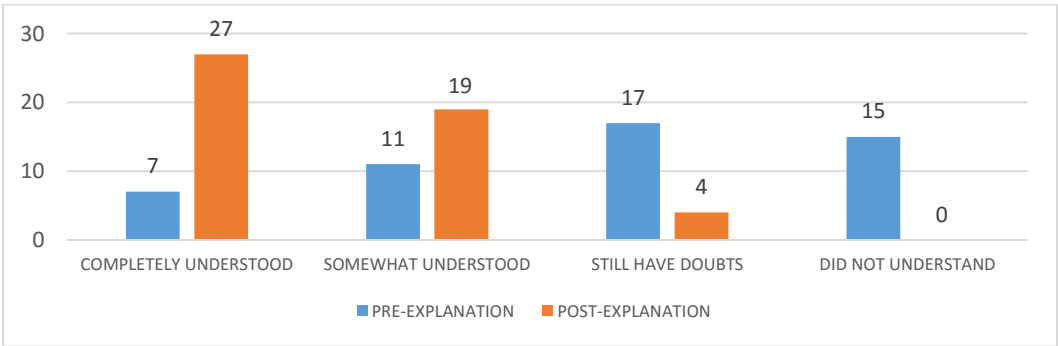
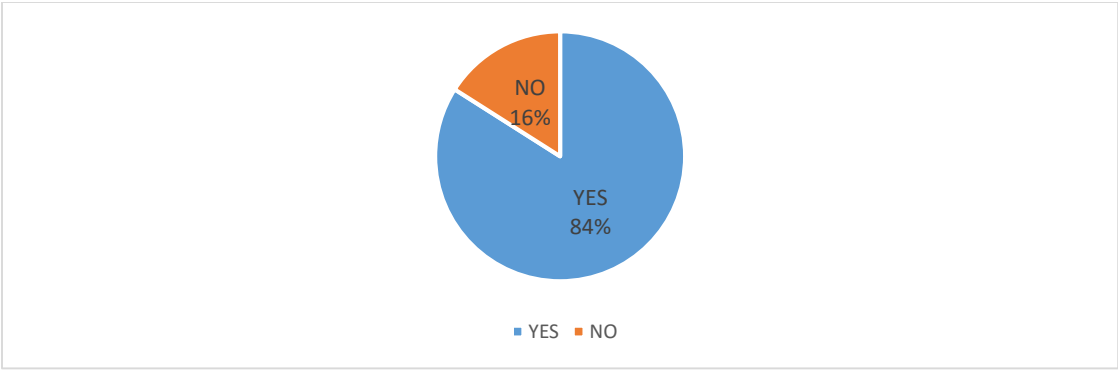


Figure 2. Responses provided to knowledge before and gained after explanation of procedure



**Figure 3.** Responses provided upon asking the helpfulness of the explanation provided to the patients

CHARACTERISTIC	p-value (prior to explanation)	p-value (post explanation)	Spearman’s correlation (r)
KNOWLEDGE GAINED	.97	.024*	.70*

**Table 2.** Statistical analysis of knowledge before and gained after explanation of procedure